

IMEC's compound growth

Back in August, the silicon equipment manufacturers association SEMI (whose co-founder, Bill Hugel, sadly died in October) quietly slipped SiGe, GaAs and InP under its arm and into its future silicon road map, slotting these compounds into the new wireless communications chapter.

SEMI might have made the first move, but it is now followed in Europe by silicon's premiere research laboratory IMEC. For many in the compound industry, IMEC probably has a low profile. Based in Leuven, Belgium, IMEC was established in 1984 by the state government as a non-profit organisation with an initial investment of €63m and a staff of 70. Working quietly through strategic partnerships on all aspects in the development of silicon, chips and memory, initially with European fabs and equipment manufacturers, it has now grown to offices in California and Shanghai and Japanese representation. It is the largest independent silicon R&D centre in Europe, and with its budget of €145m owes only €34m to a government grant. The staff number 1,300 and the collaborators around 500.

At its October annual meeting to discuss developments and look at the future, IMEC president and CEO, Gilbert Declerck announced that the mission for sub45nm CMOS would involve advanced materials, process steps and modules as well as novel device concepts 'beyond classical CMOS.' Silicon's potential brick wall is now causing IMEC programmes to draw on Germanium CMOS based devices (SiGe); epitaxial growth of AlGaIn/GaN

HEMT amplifiers as well as InGaP and GaAs (for the photovoltaic needs of the European Space Agency).

What's so interesting is there are two distinct levels of activity. The main action is seen as IMEC's first five core partners in sub45nm research. Infineon, Intel, Philips, Samsung and STMicroelectronics are co-funding and participating in programmes "ranging from €1.5m to €500,000-€600,000." They may be joined by another three to five players. The major activity will move from the 200mm wafer line to the new 300mm line in rising new buildings to be completed in 2004 (building and infra-structure cost €84m and several €100m worth of equipment).

Meanwhile the modest future brick-wall beaters, with very little pomp have had their MOVPE equipment, formerly located at Ghent, moved into laboratories at IMEC's Leuven site, close to the 200mm line and compound work goes on.

It's a breathtaking thought - small sub 6" wafer production in the shadow of the 200mm and piazza size 300mm wafers. Watch out for IMEC's compound growth.



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